

**REMARKS**

This Amendment cancels claims 11 and 13, amends claims 1-10, 12 and 14-15 and adds new claim 16. Claims 1-10, 12 and 14-15 are pending. Claims 1 and 16 are independent.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**" It is noted that the amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

**I. THE CLAIMED INVENTION**

Applicant's invention, as disclosed and claimed, is directed to a magnetic disk apparatus including a first printed circuit board having a disk enclosure and a second printed circuit board. The first printed circuit board includes circuits which hold parameters unique to the disk enclosure. The second printed circuit board mounts circuits with a second noise resistance property which is superior to a first noise resistance of circuits mounted on the first printed circuit board.

In a first exemplary embodiment as recited in independent claim 1, the circuits on the second printed circuit board also include a switch for selecting either of a first group which includes the disk enclosure and the first printed circuit board and a second group which includes another disk enclosure and another first printed circuit board.

This first exemplary configuration enables a single processor to control two interchangeable parts to improve cost and capacity.

In a second exemplary embodiment of the invention as recited in new independent claim 16, the second circuit board is separated into a third printed circuit board and a fourth printed circuit board. The third printed circuit board includes the interface control circuit and the fourth printed circuit board includes other circuits.

This second exemplary configuration does not require the entire magnetic disk apparatus to be changed when the interface format changes. Only the third printed circuit board is required to be changed when the interface format changes.

## **II. THE 35 U.S.C. § 112 REJECTION**

The Office Action rejects claims 1-15 under 35 U.S.C. § 112, second paragraph. This Amendment amends the claims in accordance with Examiner Chen's helpful suggestions. Applicant respectfully requests withdrawal of the rejection.

## **III. THE APPLIED REFERENCES**

The Office Action rejects claims 1-15 under 35 U.S.C. §103(a) over Takao et al. (Jp5-81846). Applicant respectfully traverses this rejection.

The applied reference does not teach or suggest the features recited in independent claims 1 and 16 including: 1) the second printed circuit board including a switch for selecting either of a first group which includes the disk enclosure and the first printed circuit board and a second

group which includes another disk enclosure and another first printed circuit board (claim 1, Fig. 2); and 2) the second circuit board being separated into a third printed circuit board and a fourth printed circuit board, wherein the third printed circuit board includes the interface control circuit and the fourth printed circuit board includes other circuits (claim 16, Fig. 3). Rather, Takao et al. discloses only a single set of disk enclosures and first printed circuit boards. Takao et al. discloses a first case 2a and a second case 2b. The number of circuits on the first case 2a is minimized and moved to the second case 2b.

Takao et al. discloses that at least the logic operation circuit (processor) is in the second case 2b [0009]. This configuration minimizes the generation of heat and reduces the influence of the noise generated by the logic operation circuit upon the writing operation of the magnetic head [0033] Takao et al. does not make any mention of any second set of disk enclosures and first printed circuit boards and, therefore, does not disclose, nor have any need for, a switch to select between the sets. Thus, Takao et al. does not teach or suggest a second printed circuit board including a switch for selecting either of a first group which includes the disk enclosure and the first printed circuit board and a second group which includes another disk enclosure and another first printed circuit board as recited in independent claim 1.

The Office Action asserts that Takao et al discloses one of a case 2a and another of one case 2a in Fig. 12. However, Applicant notes that Fig. 12 in Takao et al. only discloses a single case 2a, not a second case 2a.

Further, regarding claim 16, Takao et al. also does not disclose separating the second printed circuit board into third and fourth printed circuit boards. Indeed, Takao et al does not

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mention anything more than the 1<sup>st</sup> case 2a and the 2<sup>nd</sup> case 2b. Thus, Takao et al. does not teach or suggest a second circuit board being separated into a third printed circuit board and a fourth printed circuit board, wherein the third printed circuit board includes the interface control circuit and the fourth printed circuit board includes other circuits as recited in independent claim 16. Applicant respectfully requests withdrawal of the rejection.

#### IV. FORMAL MATTERS AND CONCLUSION

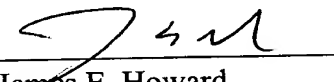
In view of the foregoing amendments and remarks, Applicant respectfully submits that the Application is in condition for allowance. Applicant respectfully requests prompt reconsideration and allowance.

Should the Examiner believe that anything further is desirable to place the Application into condition for allowance, Applicant invites the Examiner to contact the undersigned attorney at the telephone number listed below.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 6/5/02

  
James E. Howard  
Registration No. 39,715

**McGinn & Gibb, PLLC**  
8321 Old Courthouse Rd., Suite 200  
Vienna, Virginia 22182  
(703) 761-4100  
**Customer No. 21254**

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the claims:**

**Please cancel claims 11-13 without prejudice or disclaimer.**

**Please amend claims 1-10 and 14-15 as follows:**

1. (Amended) A magnetic disk apparatus comprising:

a disk enclosure;

a first printed-circuit board which is paired with said disk enclosure; and

a second printed-circuit board which is connected to said first printed-circuit board via a cable and is separated in structure from said first printed-circuit board;

wherein said first printed-circuit board mounts circuits which have a first [are poor in] noise resistance property, and a circuit which holds parameters unique to said disk enclosure; and

wherein said second printed-circuit board mounts circuits [which] have a second [are superior in] noise resistance property[.], which is superior to said first noise resistance property,  
and

wherein said circuits on said second printed-circuit board include a switch for selecting either of a first group including one said disk enclosure and one said first printed-circuit board and a second group including another said disk enclosure and another said first printed-circuit board.

2. (Amended) The magnetic disk apparatus of [according to] claim 1, wherein said circuits [which are superior in noise resistance property] on said first printed-circuit board include a recording/reproduction control circuit.
3. (Amended) The magnetic disk apparatus of [according to] claim 1, wherein said circuits [which are poor in nose resistance property] on said first printed-circuit board include an analog/digital converter.
4. (Amended) The magnetic disk apparatus of [according to] claim 1, wherein said circuits [which are superior in noise resistance property] on said second printed-circuit board include an interface control circuit with an upper system.
5. (Amended) The magnetic disk apparatus of [according to] claim 1, wherein said circuits [which are superior in noise resistance property] on said second printed-circuit board include a processor.
6. (Amended) The magnetic disk apparatus of [according to] claim 1, wherein said circuits [which are superior in noise resistance property] on said second printed-circuit board include a spindle motor/voice coil motor control circuit.

7. (Amended) The magnetic disk apparatus of [according to] claim 1, wherein said first printed-circuit board further mounts [a] an elastomer connector.

8. (Amended) The magnetic disk apparatus of [according to] claim 1, wherein said circuits [which are superior in noise resistance property] on said second printed-circuit board include plural spindle motor/voice coil motor control circuits.

9. (Amended) The magnetic disk apparatus of [according to] claim 8, wherein said circuits [which are superior in noise resistance property] on said second printed-circuit board further include a single processor.

10. (Amended) The magnetic disk apparatus of [according to] claim 8, wherein said circuits [which are superior in noise resistance property] on said second printed-circuit board further include an interface circuit with an upper system.

12. (Amended) The magnetic disk apparatus of [according to] claim 4, wherein said second printed-circuit board is separated into a third printed circuit board and a fourth printed circuit board;

wherein said third printed circuit board mounts an [said] interface control circuit; and

wherein said fourth printed circuit board mounts said circuits [which are superior in noise resistance property] other than said interface control circuit.

14. (Amended) The magnetic disk apparatus of [according to] claim 4 [13], wherein said circuits [which are superior in noise resistance property] on said second printed-circuit board include a processor.

15. (Amended) The magnetic disk apparatus of [according to] claim 4 [13], wherein said circuits [which are superior in noise resistance property] on said second printed-circuit board include a spindle motor/voice coil motor control circuit.

**Please add new claim 16 as follows:**

- - 16. (Newly Added) A magnetic disk apparatus comprising:

a disk enclosure;

a first printed-circuit board which is paired with said disk enclosure; and

a second printed-circuit board which is connected to said first printed circuit board via a cable and is separated in structure from said first printed-circuit board,

wherein said first printed-circuit board mounts circuits have a first noise resistance property, and a circuit which holds parameters unique to said disk enclosure,

wherein said second printed circuit board mounts circuits which have a second noise resistance property which is superior to said first noise resistance property,

wherein said second printed-circuit board is separated into a third printed circuit board and a fourth printed circuit, and wherein said third printed circuit board mounts an interface control circuit, and



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wherein said fourth printed circuit board mounts said circuits other than said interface control circuit. - -